

Chen, Isaac

From: Chen, Isaac
Sent: Wednesday, February 03, 2016 2:46 PM
To: 'Dan Sullivan'
Subject: RE: Test Sample Question - Offshore Products

Dan,

Because the fluid added to the system (equipment) would be more representative to what would be discharged, we agree that sample which could represent fluid in the system shall be used for the toxicity test. Let me know if you still have questions about this matter.

Isaac Chen
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From: Dan Sullivan [mailto:Dan.Sullivan@houghtonintl.com]
Sent: Tuesday, February 02, 2016 3:34 PM
To: Chen, Isaac
Cc: Ria Scheuren; Dave Slinkman; Graham Craig
Subject: Test Sample Question - Offshore Products

Hi Mr. Chen,

Thank for our conversation today. The following helps to describe the product use scenario and asks a question about what constitutes the correct test sample to evaluate.

Scenario: Houghton International, Inc. sells offshore formulations to companies that use these on rigs located in the Gulf of Mexico. The formulation that is put into a 55-gallon drum is concentrated to maximize the quantity of active ingredients and to minimize the quantity of water. On the rig, the operators dilutes the concentrated formulation and places this into the equipment and processes for its intended use. Operator dilutions have some variability but generally described by a product that is 5 parts concentrated formulation and 95 parts make up water. This 5/95 mixture constitutes what exists in the equipment and what is released from the rig into the environment.

Sub Sea Biomonitoring Report: Houghton International, Inc. annually sends samples of formulated product to a testing lab where the aquatic toxicity is determined for the following test species:

- Inland Silverside (*Menidia beryllina*) Larval Survival & Growth Test, EPA-821-R-02-014: Method 1006, and
- Mysid (*Americamysis bahia*) Survival, Growth, and Fecundity Test, EPA-921-R-02-014: Method 1007

The pass/fail criteria is 50 mg/L for both survival and growth.

Question: What is the correct test sample to evaluate? Is it the concentrated formulation as shipped to the customer in a 55 gallon drum or is it the diluted 5/95 sample as used in the equipment by the rig operators? Houghton International, Inc. believes that the correct sample is the 5/95 sample as this is representative of what is discharged into the environment under an NPDES permit. It is analogous to the WET test sample that is discharged directly into the environment. Due to operator variability, Houghton International, Inc. proposes to test a 10/90 sample (10 % formulated concentrate and 90% dilution water).


Thank you for helping to answer this questions as Houghton International, Inc. wants to have compliant and representative test results for rig operators to reference when applying for their NPDES permits.

Daniel E. Sullivan, PhD

Manager Global Product Stewardship
Houghton International, Inc.

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